



ACSES

A β χ δ
Signaling Inc.



ACSES Overview

- Advanced Civil Speed Enforcement System
- Northeast Corridor
- 240 Route Mi./ 506 Track Mi.
 - Plan 400 route miles/ 1150 Track miles
- 48 Interlockings

ACSES Overview

- 460 Locomotives & Commuter Trains
 - **AEM 7, F40PH2, GP40, GP9, V23B, B23-7, GP 38, GE Super 7, MP 15, F40**
 - **Kawasaki, MBB, & Bombardier Control Coaches**
 - **ACELA High Speed Tilt Trains**

ACSES

A β χ δ
Signaling Inc.

- Phase I
 - **Civil Speed Enforcement**
 - **Home Signal Stop Enforcement (PTS)**
- Phase II
 - **Radio Release PTS**
 - **Temporary Speed Restriction - On Board Enforcement**

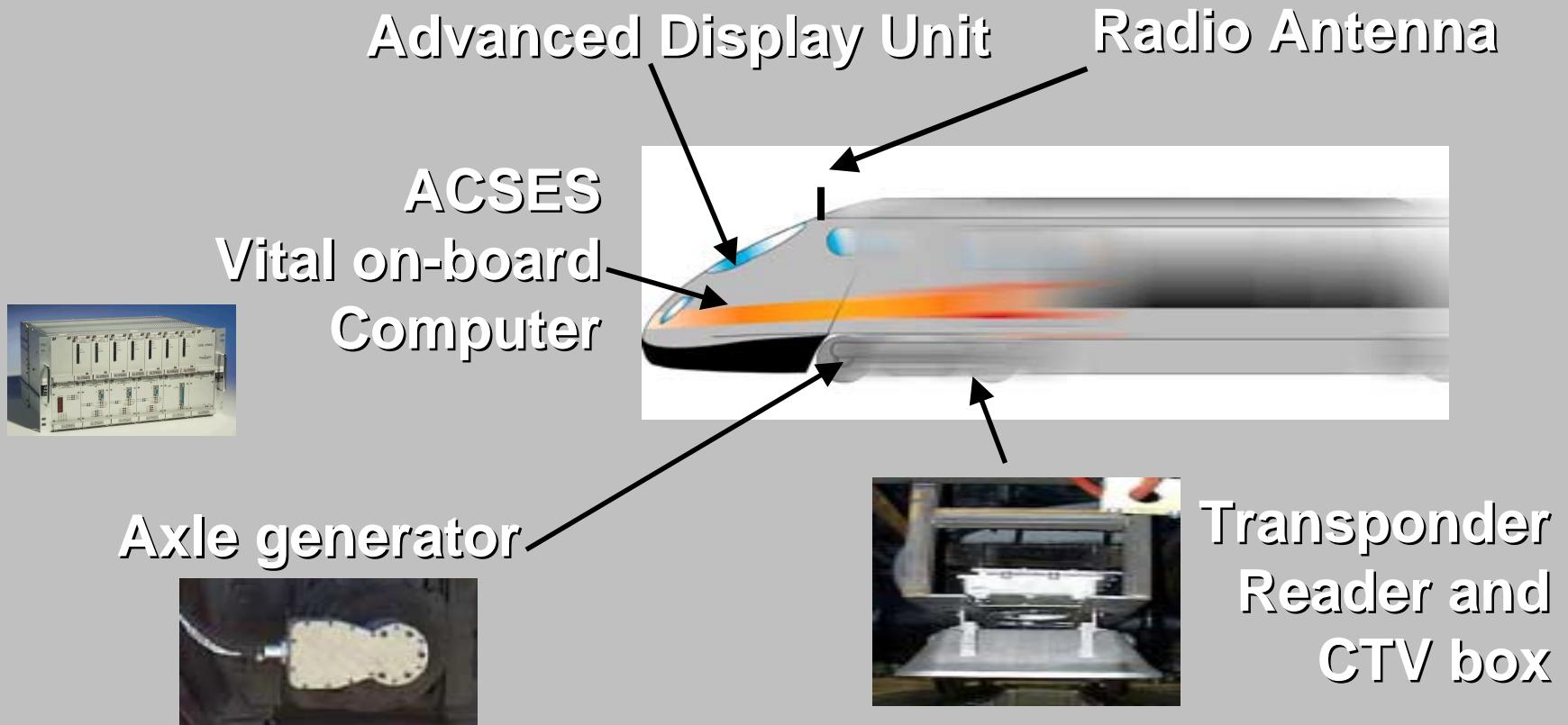
Transponders



TRANSPOUNDER DATA CONTAINED IN PROGRAMMABLE PLUG

- Operates to 310 MPH
- Passive - No wiring

Trainborne Equipment

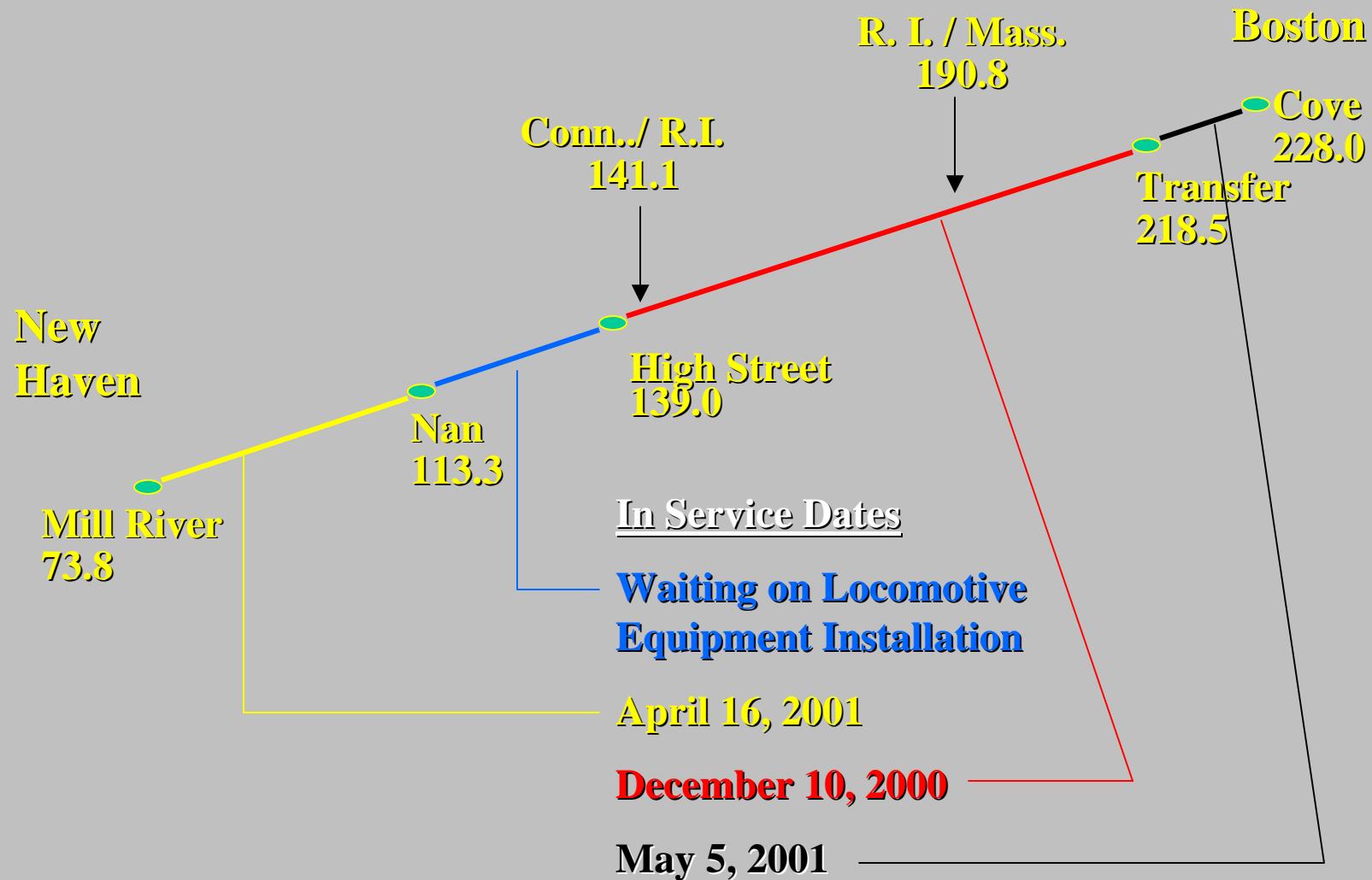


ADU



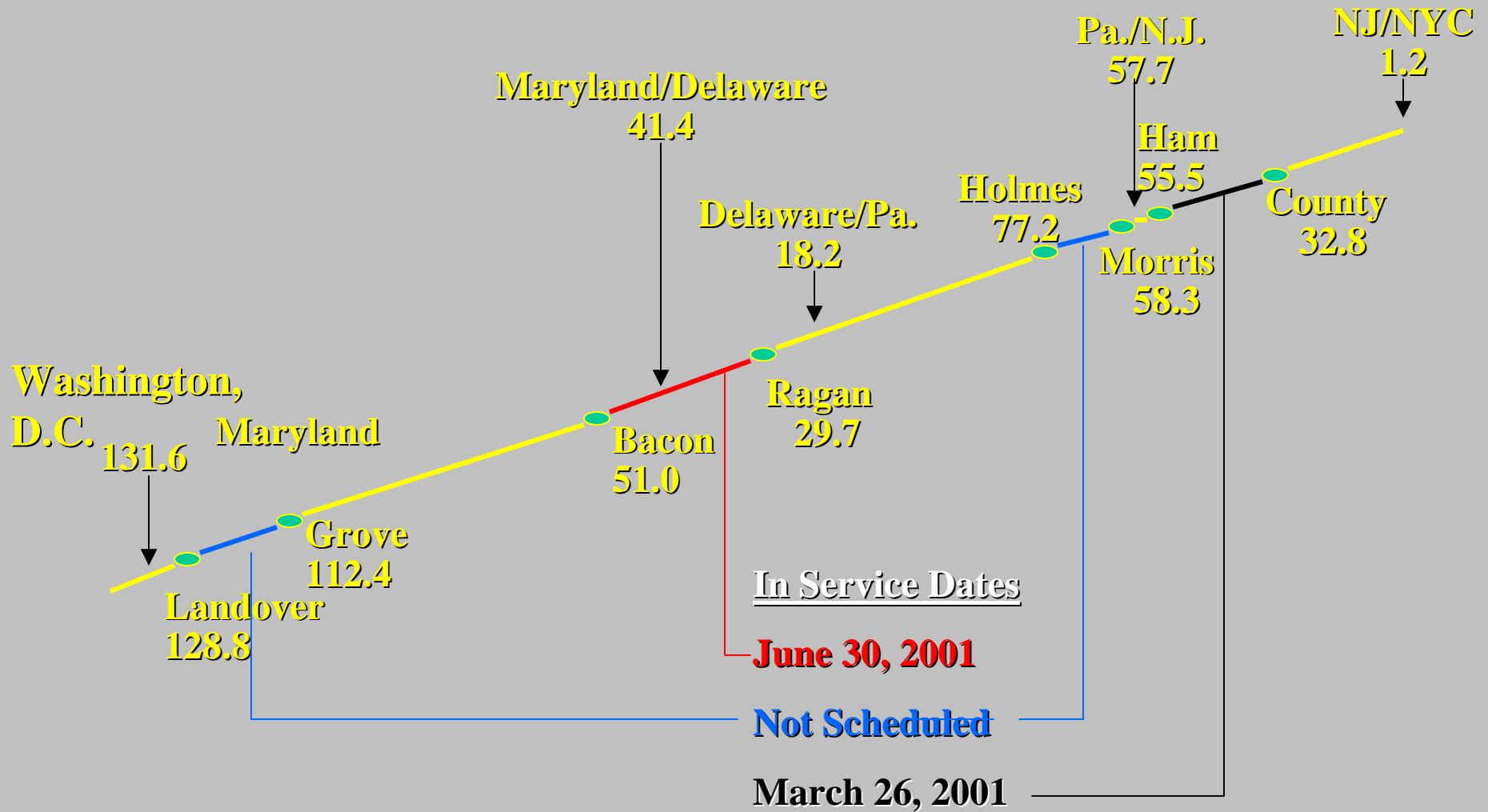
ACSES Phase I Status

A β χ δ
Signaling Inc.



ACSES Phase I Status

A β χ δ
Signaling Inc.



ACSES Phase I Status

- On-board equipment installed & ready for (or in) service (206 Units)
 - Amtrak 75
 - MBTA 74
 - CSX 24
 - P & W 17
 - CDOT 14
 - Acela 2

ACSES Phase I Operation

- Infrastructure Data Must be Accurate
 - Curve Speeds & Locations
 - Chaining data
- Operation Problems
 - No problems with transponders
 - Operator's learning curve
 - Brake Curves conservative
 - No Time to Penalty or Brake curve information given to operator

ACSES Phase I Operation

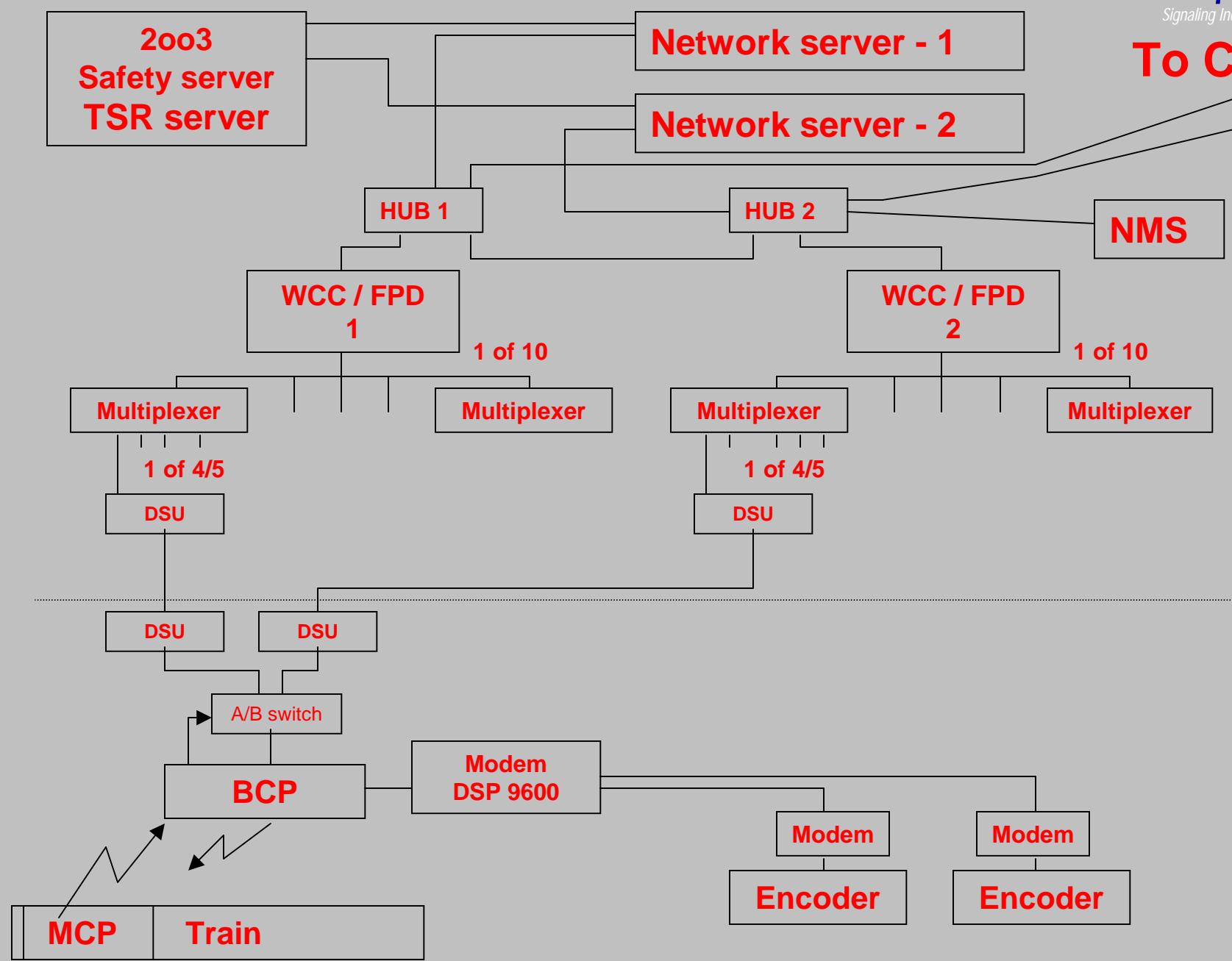
- System Modifications
 - Expand wheel size calibration range
 - Redefine actions requiring operator acknowledgement
 - Modify Tilt Enable/Disable
 - Energize ACSES magnet valve when cutout

A β χ δ
Signaling Inc.

ACSES Phase II

A β χ δ
Signaling Inc.

To CETC



ACSES Phase II Status

- BCPs delivered
 - **Antenna sites being determined**
 - **Installation to be completed by Amtrak**
- Encoders delivered
 - **Site specific logic design started**
 - **Installation to be completed by Amtrak**
- TSR Input Process defined
- Office servers and communications network designed
- OBC requirements defined

ACSES Phase II Schedule

- Phased implementation
 - PTS Radio release
 - TSRs enforcement
- To be completed 2002

Interoperability

- With NJT
 - **System Operation**
 - **Equipment**
- Application of ACSES on different locomotives and control cars
 - **Cab Signals Systems**
 - **Air Brake Interface**
 - **Locomotive Controls**

System Implementation

- Design Review
- Field Testing
 - At TTCI for over all design
 - AT Amtrak NEC locations for
 - Equipment
 - Wayside installation
- Lab testing for Database validation

Training

- Tools
 - **Test Train**
 - **Simulators**
 - **Manuals**